



## An Investigative Report Focusing on a Case Related to Mirizzi Syndrome

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### ABSTRACT:

Mirizzi syndrome is an uncommon complication of gallstones that occurs when a gallstone becomes stuck in either the cystic duct or the Hartmann's pouch, causing a blockage in the bile duct. This blockage leads to external pressure on the common hepatic duct and results in obstructive jaundice. In developed Western countries, the prevalence of this condition falls between 0.05% and 2.1%, while in other regions globally, it is higher. It manifests as recurring episodes of obstructive jaundice, accompanied by right upper quadrant (RUQ) abdominal pain, as well as recurrent cholangitis and fever in patients with known or suspected gallstone disease. The ultimate goal of treatment is the removal of both the offending stone(s) and the site for stone formation, and the repair of the biliary fistula if present.

Keywords: Mirizzi Syndrome, Gallstones, Cholangitis, Obstructive jaundice

### 1. INTRODUCTION:

Mirizzi syndrome occurs when a gallstone becomes stuck in either the cystic duct or the Hartmann's pouch, causing a blockage in the bile duct [1].

It involves the blockage of the common hepatic duct by a stone lodged in the neck or cystic duct of the gallbladder [2].

This blockage leads to external pressure on the common hepatic duct and results in obstructive jaundice. While it's uncommon as a cause of obstructive jaundice, dealing with it poses significant clinical and surgical challenges [2].

In developed Western countries, the prevalence of this condition falls between 0.05% and 2.1%, whereas in other regions globally, it's higher, ranging from 4.7% to 5.7% [3].

It appears in around 0.1% of individuals with gallstones and is detected in approximately 0.7% to 2.5% of cholecystectomies [3].

Mirizzi syndrome manifests as recurring episodes of obstructive jaundice (seen in 60%-100% of cases), accompanied by right upper quadrant (RUQ) abdominal pain (present in 50%-100% of cases), as well as recurrent cholangitis and fever in patients with known or suspected gallstone disease [3].

Laboratory tests often reveal elevated white blood cell count (leukocytosis), increased bilirubin levels (hyperbilirubinemia), heightened alkaline phosphatase, and raised aminotransaminase levels. These markers are frequently observed alongside acute cholecystitis, pancreatitis, or cholangitis [3].

This complication is infrequent in cases of symptomatic cholelithiasis and primarily occurs in women aged between 50 and 70 years [4].

The underlying mechanism is thought to stem from a gallstone becoming stuck in the infundibulum, leading to persistent inflammation of the gallbladder and exerting pressure on the common bile duct [4].

It is categorized into two fundamental types for therapeutic considerations. In Mirizzi type I, the condition involves solely an external compression of the common hepatic duct due to the stone(s) and the resulting inflammatory response. In Mirizzi type II, a cholecystocholedochal fistula is formed through pressure-induced necrosis caused by the stone(s) [5].

The most common presentation of Mirizzi syndrome is obstructive jaundice, in the setting of gallstones disease. Patients may experience right upper quadrant pain and fevers [4].

The ultimate goal of treatment of patients with Mirizzi syndrome is the removal of both the offending stone(s) and the site for stone formation, and the repair of the biliary fistula if present. Therefore, the first choice of treatment for patients with Mirizzi syndrome is surgical [5].

Despite the usefulness of imaging methods and ERCP in diagnosis, surgeons often identify Mirizzi syndrome during operations. Proper management is crucial during surgery to prevent harm to the common bile duct [4].

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## 2. CASE DESCRIPTION:

A 49 year old female patient who had a history of abdominal pain in the epigastric region radiating to the back after consuming food on and off, tenderness and was treated in a private hospital. Now the patient came to the hospital with similar complaints, fever and vomiting for the past 4 days. The patient was a known case of type 2 diabetes mellitus (T2DM) and hypertension was on regular medications: Tab. Telma (Telmisartan) 40mg BD, Tab. Amlong (Amlodipine) 5mg BD, Tab. Crestor (Rosuvastatin) 20mg HS and Tab. Amaryl (Glimepiride) 3mg BD. The patient was allergic to penicillin. Her vital signs were all normal. The ERCP (Endoscopic retrograde cholangiopancreatography) which showed cholangitis- Distal common bile duct stone.

### 2.1 Ct- whole abdomen:

The impressions are:

- Cholelithiasis (likely passed down from cystic duct) and distended gall bladder.
- Pericholecystic inflammatory changes- to evaluate for cholecystitis

The laboratory findings shows that the patient had decreased Hb(7.3g/dl), hematocrit (22.6%) and Total RBC count (2.96 million/cu.mm). There were increase in the CRP (155.96mg/L), Alkaline phosphatase (261.9 U/L), Total bilirubin (4.50mg/dl), Direct bilirubin (3.50mg/dl) and Indirect bilirubin (1.00mg/dl).

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## 3. DISCUSSION:

Based on the complaints on admission along with above mentioned laboratory investigations and CT scan, the patient was diagnosed to have MIRIZZI SYNDROME WITH OBSTRUCTIVE JAUNDICE. The patient was advised to undergo Laparoscopic Cholecystectomy.

Before surgery, the patient was given with Inj. Fentanyl 100mg (Opioid analgesic), Inj. Propofol 50mg (General anaesthesia) and Inj. Xylocard 100mg (Local anaesthesia). Also she was administered with Inj. Tramadol 100mg in 100ml NS and Inj. Magnex Forte (Cefoperazone+sulbactam) 1.5g as STAT. A 10mm calculus was found in the gall bladder. After surgical procedure, the patient was prescribed with Inj. Magnex Forte (Cefoperazone+sulbactam) 1.5g BD to prevent infection due to surgery, Inj. Para (Acetaminophen) 1g TDS to reduce pain post-surgery, Inj. Vitamin K 10mg OD was added for 3days since the patient was having obstructive jaundice because of which there will be deficiency in vitamin K that may lead to bleeding, in order to prevent that this injection was prescribed, Inj. Tramadol 50mg in 100ml NS to reduce severe pain since the patient was having increased pain frequency, the dose was then changed to 100mg in 100ml NS, Inj. Emeset (Ondansetron) 4mg SOS since the patient had the complaint of vomiting, this drug was prescribed and Syp. Sucralfil 2 teaspoons TDS was given to treat and prevent ulcers.

The patient was also transfused with a pack of packed red blood cells (PRBC) since the patient was anaemic. 4 days after the date of admission, Inj. Para, Inj. Tramadol and Inj. Magnex Forte were all stopped. Tab. Ultracet (Tramadol+Acetaminophen) and Inj. Pan (Pantoprazole) 40mg OD was added.

In the above mentioned case, the patient was diagnosed with Mirizzi syndrome which was due to the gall bladder stone and there were evidences of Cholangitis which was seen in ERCP. The similar case was demonstrated by Thomas C Bower et al. in his study done at Mayo clinic where they studied five patients with mirizzi syndrome due to gallstones and acute or chronic inflammation of the gall bladder and with a history of jaundice or cholangitis.[2]

In present case, the patient was female in the age group of 40's with the complaint of nausea, vomiting, epigastric pain, tenderness and underwent laparoscopic Cholecystectomy procedure.

In Bader Hamza Shirah et al. study, the mean age of the participants were 41 with the common symptoms were nausea, vomiting and epigastric pain and most of the patients were female ranging about 76%. Most of the participants underwent Laparoscopic Cholecystectomy. [3]

Based on the laboratory findings which showed leucocytosis, Increased Alkaline phosphatase, Hyperbilirubinemia, Cholangitis and distended gall bladder and gall stones, the patient was diagnosed with the Mirizzi's syndrome.

Petar B. Petricevic et al. also published two case reports regarding the Mirizzi syndrome with around 4 patients. [6]

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## 4. CONCLUSION:

As discussed, in the above mentioned case the patient underwent surgery and was given symptomatic treatment post-surgery. But the patient remained to be anaemic which was treated by transfusing PRBC and Tab. Livogen.

On the day of discharge, the patient was active and her condition clinically improved than before.

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